

# **ARMY/NAVY CAS COOPERATION: DON'T FORGET NAVY CAS**

**A MONOGRAPH  
BY**

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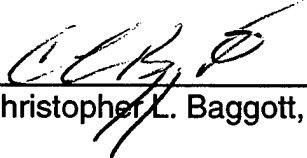
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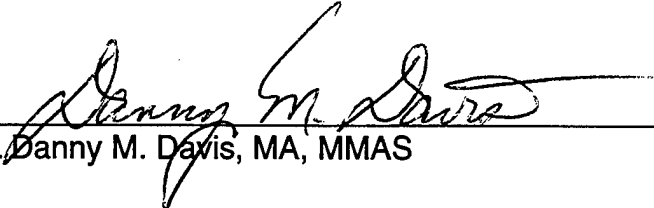
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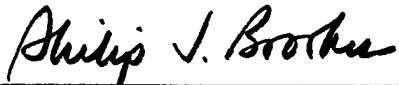
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## ABSTRACT

ARMY/NAVY CAS COOPERATION: DON'T FORGET NAVY CAS by LCDR Brick R. Imerman, USN, 41 pages.

The Navy's aircraft carrier battle groups have historically been the first to arrive in troubled areas around the world, and will strive to do so in the future. As a result of this commitment, Navy CAS has played a role in the close fight for Army and Marine Corps ground units in every major conflict since World War II. In Korea, Navy CAS proved extremely valuable, both in forced entry operations, such as Inchon, and in evacuation operations, such as the retreat from the Yalu. Likewise, in Vietnam, Navy CAS proved critical in battles such as Khe Sanh. Despite the great success of Air Force assets in Desert Storm, history and geography reveal that the availability of air fields in the vicinity of the front may not always follow the user friendly environment of Saudi Arabia. Often, the air field environment of Korea or Vietnam may more accurately template the war of the future, especially in the entry and exit phases of an operation. For this reason, it is essential that the combat power of Navy CAS not be forgotten.

Yet today, parochial arguments persist which claim that one service can do the job better than all the others. Contrary to the notion that one service is in fact "best," this monograph addresses the synergistic question relating to CAS: Are there operational benefits to be obtained through Army/Navy CAS cooperation?

In researching this question, an examination of CAS from the current U.S. perspective on air power theory in general will set the stage for further analysis. Once a theoretical foundation has been laid, a discussion on the historic role of Navy CAS in support of joint and combined operations since WWII will be presented. This will be followed by a presentation of current arguments against fixed-wing CAS and Naval Aviation in general, both from the aspects of fleet vulnerability and excessive costs. These broad based arguments against carrier air in general must be addressed, since it must be deduced that if one believes aircraft carriers themselves are obsolete, then any pursuant arguments concerning Navy CAS in specific are irrelevant. With this foundation established, an analysis of Navy CAS in particular will be presented. Finally, conclusions concerning Army/Navy CAS cooperation will be presented.

In the end it is proposed that Army weaknesses are Navy strengths, and that Army strengths are Navy weaknesses. Planners must learn to recognize these capabilities across service boundaries, or future endeavors are bound to fail. Joint training in the area of CAS is vital to our success in future operations, as synergistic effects must negate individual service weaknesses. Training and a willingness to move forward conceptually in the tactical application of CAS must remain our focus as we move CAS into the 21<sup>st</sup> century.

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## Introduction

The genesis of this paper may be found not only in the pages of history, but in my own past as well. As a youngster, I recall that my father, an Army veteran of two wars, was a great proponent of the United States Navy. One summer we traveled from the family farm to the city to see my first air show. While I marveled at the planes and their graceful maneuvers, I remember my father claiming that, though the pilots were good, none could match the skill or bravery of the men who flew from the decks of Navy aircraft carriers. It didn't strike me as important at the time, but as I grew older the statement stuck with me. Years after my father had died, after I had become a Navy strike fighter pilot myself, my mother gave me the letters he had written to her from Korea. Piecing them together with the historical account of the conflict, I now better understand why this combat decorated soldier was such an advocate of his sister service and joint war fighting execution.

In late 1950, when General Douglas MacArthur pushed Chesty Puller's 1<sup>st</sup> Marines to the Chosin Reservoir in Korea, my father was assigned to the Army's 3<sup>rd</sup> Division, 15<sup>th</sup> Infantry Regiment, held in reserve in the Wonsan/ Hamhung area.<sup>1</sup> As the Chinese crossed the Yalu River, and the 1<sup>st</sup> Marines' advance turned into full scale retreat, or an "attack in another direction," as Marine Major General Oliver P. Smith put it,<sup>2</sup> my father found himself in the fiercest fighting of his life. As the Marines fled through the 15<sup>th</sup> Infantry to the port at Hungnam for evacuation, my father and others held the perimeter from the advancing Chinese. It was there that he lost much of his farm-boy innocence, and many of his close friends.

Aboard one of the last ships to depart the harbor on Christmas Eve 1950, with the fires of burning equipment lighting the evening sky, my father considered himself a lucky man. It is clearly evident from his letters and later statements that he felt that if it hadn't been for the fierce dedication of carrier based close air support (CAS) pilots and the shelling of the U.S.S. Missouri,

which combined to form a protective ring around the withdrawing soldiers, he and the rest of the men there would have been overrun.<sup>3</sup>

### What This Paper Addresses

Throughout the 20<sup>th</sup> century, naval fire support, including CAS, has played an important role in supporting our nation's soldiers and marines ashore. Yet today, the 16 inch guns of the battleships lie silent. As currently configured, the Navy's high-tech Tomahawk missiles, the standard weapon for the surface fleet, though extremely lethal in many scenarios, would be ineffective in the situation faced by our troops at Hungnam. Without the firepower of the battleship, the task of supporting troops across the beach for the Navy today rests squarely on the shoulders of the pilots flying the F/A-18 Hornet and the F-14 Tomcat.

Yet, given the current climate of defense budget cuts, it is common to hear parochial arguments which claim that one service can do a job better than all the others, and therefore doesn't require the support of its sister services. Contrary to the notion that one service is in fact "best," this paper addresses the synergistic question relating to CAS: Are there operational benefits to be obtained through Army/Navy CAS cooperation?

In researching this question, a discussion on CAS from the current U.S. perspective on air power theory in general will set the stage for further analysis. Once a theoretical foundation has been laid, a brief examination of the historic role of Naval Aviation and CAS in support of joint and combined operations since WWII will be presented. This will be followed by a presentation of current arguments against fixed-wing CAS and Naval Aviation in general, both from the aspects of fleet vulnerability and excessive costs. This discussion will include broad arguments against carrier air in general, since it must be deduced that if one believes aircraft carriers themselves are obsolete, then any pursuant arguments concerning Navy CAS in specific

are irrelevant, as one is tied directly to the other. With this foundation established, arguments against Navy CAS in particular will be examined. Finally, conclusions concerning Army/Navy CAS cooperation will be presented.

It is important to note that, given the unclassified format of this paper, an in-depth discussion on proposed tactical battlefield employment of Army/Navy CAS assets cannot be presented. However, it is worth mentioning that such employment, especially given the current state of technological advances, could, in fact, be devastating to enemy forces.



## Chapter 1: Air Power Theory and CAS

Before beginning a discussion on CAS, it is necessary to first understand its role in the current thinking on air power in general. Air theory, being relatively young in relation to the other combat arms, has a relatively small number of major theorists. The current theorist most widely ascribed to and debated by the air arm of the United States is retired Colonel John A. Warden III, a former Air Force fighter wing commander, who served as the Commandant of the Air Command and Staff College at Maxwell Air Force Base shortly after Desert Storm. Far from being a mere schoolhouse theorist, his air campaign theory was put into action in the Gulf War. James Blackwell went so far as to say that, "The Desert Storm air campaign plan was precisely fashioned after Colonel Warden's theories."<sup>4</sup> Considering that the Desert Storm air campaign has been considered by some the greatest air campaign in history, his theory deserves further discussion.

In his book, "The Air Campaign," Colonel Warden argues that there are, "three traditional air combat missions - air superiority, air interdiction, and close air support."<sup>5</sup> With finite resources available for any air campaign, it follows that a mission flown in any one of these three areas detracts from the total number of missions available in the other two. For this reason, it is imperative that the air campaign planner carefully prioritize air missions in order to maximize combat effectiveness.

This, of course, leads to the question - what is the proper prioritization for the three combat missions? Colonel Warden's analysis of the last half century of warfare led him to believe that, "surface warfare cannot possibly succeed if the surface forces and their support are under constant attack by enemy aircraft."<sup>6</sup> Surface forces, as offered by Colonel Warden, include both those on land and sea. As German Field Marshal Edwin Rommel observed, "anyone who has to fight, even with the most modern weapons, against an enemy in complete

control of the air, fights like a savage...”<sup>7</sup> It therefore follows, in Colonel Warden’s view, that air superiority should be the first priority in any campaign - “all operations must be subordinated - to the extent required - to its attainment.”<sup>8</sup>

The second priority for the air campaign is air interdiction. Borrowing from Clausewitz, Warden argues that enemy centers of gravity at each level of warfare be identified and attacked, either directly or indirectly, to cripple the enemy decisively, thereby shortening the war.<sup>9</sup> Air interdiction, in Warden’s view, often offers the most direct and expeditious attack of those centers of gravity. For this reason, air interdiction falls closely behind air superiority in combat prioritization. Proper utilization of air interdiction paves the way for success on the ground by reducing enemy forces, command and control, support, and morale. As a result of effective air interdiction, friendly ground casualties can be reduced and assets can be freed for other operations.

Finally, but nonetheless as important, falls the air combat category of CAS. Although CAS is listed by Colonel Warden as third priority in a list of three, it does not follow that he considers it nonessential. For example, an F/A-18 pilot today carries three missile types into combat - the AMRAAM, the Sparrow, and the Sidewinder. And though he may prioritize them in the same order as listed above, he would still refuse to catapult from the carrier if the third priority missile, the Sidewinder, was not loaded on his aircraft. Each weapon type serves a certain purpose, and must be included in his arsenal. Colonel Warden views CAS in the same manner.

Colonel Warden believes that it is best to view, “close air support in terms analogous to the operational reserve...”<sup>10</sup> This does not mean that CAS should be used as a reserve, as some have misconstrued this passage to mean, but rather that it should be viewed as a scarce resource which should be employed wisely, usually, but not exclusively, to extend a breakthrough or stop

an enemy attack. As a scarce resource, CAS usage potentially robs air assets from air superiority and air interdiction missions which are setting the stage for next week's battle. CAS, in Colonel Warden's view, should therefore not be placed in the hands of ground commanders who doggedly hold it unused for some future attack while interdiction missions needed today go unscheduled.

This does not imply that ground commanders should not request CAS when it is needed. Requesting and utilizing CAS sorties wisely is an efficient use of resources which does not reflect negatively on the ground commander. However, if large percentages of CAS sorties are required for ground units to successfully complete their missions, this may serve as an indicator to air campaign planners that there could have been better planning in the interdiction phase. In other words, a need for a high percentage of CAS sorties is not a negative reflection on the ground commander, but rather a reflection on the ineffectiveness of the air interdiction effort.

Colonel Warden is not totally rigid in his prioritization of air assets, noting that a fluid battlefield is no place for absolutes. He recognizes that there are times when CAS may in fact, due to circumstances of war, become the highest priority, falling ahead of both air superiority and air interdiction. He states that the theater commander may rightly choose to:

"throw everything at the ground...if the battle in progress is unquestionably the decisive battle of the war; if withdrawal is militarily impossible; if losing the battle means surrender; if the battle certainly will end within a few days; and if stopping the enemy positively means no further enemy offensive before friendly air and ground forces can be rebuilt."<sup>11</sup>

A final note worth considering is that, though Colonel Warden generally bases his arguments on Air Force examples, his theory supports and readily encompasses Naval Aviation as well. In the preface of his book, he apologizes for his lack of references to carrier air power, noting that, "indeed, in any conceivable major war fought by the United States, aircraft carriers will be a necessary part of the offensive needed to win the war."<sup>12</sup> Colonel Warden's historical

studies revealed to him the inherent strengths and weaknesses of both land and sea based air power, and the necessity for both - a fact which is worth remembering throughout this paper.

### Summary/Conclusion

Though Colonel Warden's views are by no means the last and only words on air power theory, it is from his general perspective on CAS that this paper will focus. Though third in a priority of three, CAS is still an essential combat element to which the services must train. Further, it must always be remembered that, regardless of the recommendations of air priorities by the Joint Forces Air Component Commander (JFACC), the final decision on priorities lies directly in the hands of the Joint Forces Commander (JFC), who is normally an Army General. The JFC may choose to upgrade the prioritization of CAS to number one any time the battlefield so dictates.

Air superiority must attempt to clear the skies of enemy aircraft prior to broad based battlefield operations. Air interdiction must be used almost concurrently to pave the road for ground success prior to actual engagements on the battlefield, as was the attempt during the air campaign of Desert Storm.

However, regardless of the effectiveness of the air superiority and air interdiction campaigns, CAS in direct support of ground forces will remain an essential component for the synergistic effect of combat power on the battlefield, whether in planned offensive operations, or when enemy forces fail to succumb to interdiction efforts and turn the tide against us. As such, CAS will always remain an important combat mission for planners in the operations cell of the JFACC. As an essential component of U.S. air power, Navy air stands prepared to augment the CAS mission when called.

## Chapter 2: Historical Analysis

With a basic theoretical understanding of the importance of CAS, a brief historical look at Navy CAS will now be presented, attempting to delineate examples which could be relevant for planning in future conflicts.

### World War II

During WW II, the aircraft carrier took center stage from the battleship as the Navy's primary means of force projection. The U.S. defeat at Pearl Harbor and subsequent battles in the Coral Sea and Midway established the aircraft carrier as the new capital ship of the Navy.

Though large carrier battles often pervade the memories of those interested in the history of WWII, the influence of naval air was far larger than that of merely "fleet killer." At the same time that carrier air was gaining naval recognition and dominance, a new train of thought was developing among ground commanders as to the role of air power. Persuaded by a forward thinking staff, General Douglas MacArthur recognized, perhaps begrudgingly at first, the necessity for establishing air superiority in the island hopping campaign in the Pacific theater. From 1943 to the end of the war, MacArthur's ground plan focused almost exclusively on seizing airfields in order to extend his forward air presence, thus allowing air power to set the stage for further ground advances.<sup>13</sup>

An essential element of this new strategy revolved around naval air power and the aircraft carrier. This was a logical evolution considering the island nature of MacArthur's campaign. Not only was carrier air to gain local air superiority for continued operations, but it was to provide much needed CAS for troops going ashore as well. For example, at Leyte and the planned repatriation of the Philippines, "MacArthur's Navy" of over 700 ships included 18 small aircraft carriers from the Seventh Fleet, including 503 aircraft, supplemented by Admiral

Halsey's Third Fleet of 15 carriers with over 900 aircraft.<sup>14</sup> Naval air under MacArthur was thus utilized not just as a fleet killer, but as a support force for troops going ashore as well. This method of joint operations, as history records, proved highly successful. Supporting troop ships and landings became an important role for carrier aviation throughout the Pacific.

## Korea

Though WWII and the Battles of Midway and Coral Sea provided classic examples of carrier sea battles, Korea helped confirm the more lasting role of carrier aviation. In the words of aviation historian Richard P. Hallion, this role was, "that of a force projector in limited war where land-based air power either could not be brought to bear, or where the combined strength of sea and land-based air power was needed to fulfill military objectives."<sup>15</sup> Korea proved an ideal environment for carrier aviation, with its miles of coast, combined with limited interference from enemy sea and air assets.

On the other hand, Korea presented unique problems for land-based aircraft. Subject to a front which varied from the 38<sup>th</sup> Parallel back to Pusan, from Inchon forward to the Yalu, and from the Yalu back past the 38<sup>th</sup> again, the United States Air Force (USAF) found itself packing and moving on numerous occasions. It must be noted that this fact is mentioned not to denigrate the USAF, but rather to show that one service's strength is another's weakness - a theme which will be repeated often throughout this paper. Each service has its own inherent strengths and weaknesses. The question is not which air arm is better, but rather how each can best be employed to complement the other and defeat the enemy in a given scenario.

North Korean forces, recognizing the Air Force's vulnerability, turned MacArthur's own WWII logic against him, advancing on every available South Korean airfield.<sup>16</sup> The Air Force

was at times forced entirely off the Korean peninsula, which necessitated missions flown exclusively from bases in Japan.

Contributing significantly to the ground campaign, the naval air effort in Korea was spearheaded by Task Force (TF) 77, which in the fall of 1950 consisted of five carriers.<sup>17</sup> For example, during the critical two week Inchon landing operation in September 1950, TF 77 provided ground forces with a total of 3,089 sorties, most in the form of badly needed CAS.<sup>18</sup> It was in operations such as these that the soldier on the ground gained respect for naval air support from above. Especially appreciated was the doctrine of Navy/Marine air, which viewed CAS as airborne artillery. USAF doctrine, on the other hand, stressed that, "CAS should function as an adjunct to, not as a substitute for, an Army division's own artillery."<sup>19</sup> As a result, Navy/Marine CAS could be seen "operating 50-200 yards in front of troops," while Air Force CAS seldom ventured "closer than 1,000 yards in front of troops."<sup>20</sup>

After the success at Inchon and the push north to the Yalu River on the Manchurian border, the U.S. optimism was rapidly erased by the Chinese entry into the war. A full scale retreat soon followed. Hallion noted that what separated the American withdrawal in Korea from the routs of the British prior to the Dunkirk evacuation, and Napoleon's Grand Army in Russia, was the orderly fighting allowed by superior air power. "Without air power, the fallback from Chosin would have degenerated into disaster."<sup>21</sup>

By 30 November, adjusting to the Chinese onslaught, the Navy reduced its air interdiction sorties and increased CAS assets to the retreating 10<sup>th</sup> Corps.<sup>22</sup> On 3 December, Fifth Air Force fighters in northeastern Korea withdrew to Pusan to avoid being overrun.<sup>23</sup> The Navy, on the other hand, threw seven aircraft carriers and one battleship into the fray.<sup>24</sup> From 1-11 December, Navy/Marine air flew over 2,200 sorties in direct support of the withdrawal.<sup>25</sup> On 17 December, the last land-based Marine air retired from Yonpo airfield to airfields in Pusan and

Japan.<sup>26</sup> While United Nations' airfields at Yonpo, Seoul, Kimpo, and Suwon lay empty, Naval air continued the fight.<sup>27</sup> Seven days later, on Christmas Eve 1950, the last platoons of the covering force for 10<sup>th</sup> Corps withdrew (my father included), burning and destroying anything that could be used by the advancing Chinese. The entire time, their backs were covered by the support of Naval fires.<sup>28</sup> When the last ship sailed from Hungnam, with the fires of a burning port lighting the night sky, it was escorted by a Navy F4U-5N from the U.S.S. Princeton.<sup>29</sup>

From 1950-53, Navy/ Marine air flew 65,748 CAS missions over Korea, accounting for 53% of the total CAS missions flown in theater. Further, 24% of all Navy/Marine missions were flown in the CAS role.<sup>30</sup> One need not look further than the above discussion to understand my father's great appreciation for Navy air in general, and Navy CAS specifically. Even Major General O.P. Weyland, Far East Air Force's Vice Commander for Operations, writing to USAF Chief of Staff Hoyt Vandenberg, stated, "Korea has provided an ideal area for employment of carrier-based aircraft...they have performed well and have been of great assistance."<sup>31</sup>

However, in the words of aircraft carrier historian Norman Polmar, "if sea-based aviation is to share in the credit for Allied successes in the Korean War, it must also share in the failures."<sup>32</sup> The success of carrier CAS was the direct result of the Allied failure to stop enemy supplies and troop movements prior to engagement on the battlefield. In the words of Commander Seventh Fleet, Vice Admiral Clark, "The interdiction program was a failure...It did not interdict."<sup>33</sup> Despite the best efforts of planners, the failure in the interdiction campaign necessitated the need for a robust CAS effort.

## Vietnam

During the Vietnam War, the aircraft carrier's role as a force projector in a limited war continued. Cold War tensions between the U.S. and USSR made tight control over the military



an imperative. Applied to the air war, this tight control led to President Lyndon Johnson's boast that, "they can't bomb an outhouse without my approval."<sup>34</sup> A further example of this close control was Secretary of Defense Robert McNamara's denial of Navy requests to attack North Vietnamese surface-to-air missile (SAM) sites which were under construction. McNamara feared such attacks might hit Soviet technicians on the ground, leading to a direct confrontation between the two super powers. These very same SAM sites were later responsible for downing many U.S. fliers.<sup>35</sup>

Despite these and other restrictions placed on the air campaign throughout the war, Navy air maintained its role as an integral part of the overall strategy in Vietnam. One notable example of this took place at the Battle of Khe Sanh. To understand Khe Sanh, it must be understood that the Americans were not the first to travel enmasse to Vietnam. Years before the Americans, the French battled there against the Viet Minh. From 13 March to 7 May 1954, in a place called Dien Bien Phu, General Vo Nguyen Giap defeated 16,000 French troops, paving the way for Vietnamese independence from France.<sup>36</sup> Author Patrick Jennings noted that the Vietnamese independence was not actually won on the battlefield, but rather on the streets of Paris, where Dien Bien Phu was merely the French culminating point after years of public frustration over the war.<sup>37</sup>

Utilizing a strategy which intricately intertwined the military and political aims of the North Vietnamese, known as *dau tranh* (translated "struggle"), the communists simply wore the French people out. After the American war in Vietnam, author Douglas Pike explained the ultimate goal of *dau tranh*:

"At its peak there is delivered the final psychological capper, what might be called the Dien Bien Phu gambit, a massive assault on some politically or psychologically important target, which, when captured, destroys the enemy's will to continue warfare."<sup>38</sup>

Fourteen years after Dien Bien Phu, the North Vietnamese Army, still under General Giap, initiated the Tet Offensive against the Americans. At the airfield of Khe Sanh, they presented the Americans with their own "Dien Bien Phu gambit." In Khe Sanh, however, the Americans had only 6,000 Marines compared with the French total of 16,000 soldiers. Yet, when the smoke lifted, after facing the same North Vietnamese general who had defeated the French, it was the Americans who prevailed, losing only 200 men to an estimated 10,000 Vietnamese.<sup>39</sup>

The striking difference between the two battles - the extensive use of air power by the Americans, which the French had lacked.<sup>40</sup> Three carriers from TF 77 - the U.S.S. Coral Sea, the U.S.S. Kitty Hawk, and the U.S.S. Ticonderoga - launched sorties around the clock in support of the besieged troops at Khe Sanh.<sup>41</sup> In all, Navy air conducted 5,337 sorties, most in the role of CAS, in support of the American victory.<sup>42</sup>

Although Vietnam should not be viewed as the ideal example of how an air war should be fought, it again demonstrated the value of Navy CAS in support of troops on the ground. CAS represented a major role in the 510,000 total sorties flown by Navy aircraft in the Southeast Asian theater of operations.<sup>43</sup>

### Desert Storm

With the notable exception of the Six Day Arab/Israeli War of 1967, few air campaigns have rivaled the success of the allied coalition during Desert Storm. Guided by a campaign plan constructed under the precepts of Colonel Warden's theory, combined with a desert terrain which proved the ideal hunting ground for air power, the road for the 100 hour ground war could not have been much better paved.

Because of the overwhelming success of air superiority and air interdiction missions, the combat power of CAS was rarely needed during Desert Storm. According to Thomas Keaney and Eliot Cohen, "Because of the nature of enemy resistance, or the lack of it, there were few instances in which close air support had to drop munitions close to coalition ground forces..."<sup>44</sup>

This, however, did not preclude CAS planning, as the JFACC, and more specifically the USAF, devised a unique and effective system called "Push CAS." Push CAS aircraft were not assigned to support a specific ground commander, but were sent instead to an anticipated target area. Once on station, CAS aircraft were "pushed" towards a ground commander, whether called for or not. If the ground commander did not supply a target for air crew by the time they reached minimum fuel, the aircraft was diverted to a backup interdiction target.<sup>45</sup> In most cases, CAS missions were not used and were sent to these backup targets or "kill boxes." Such was the case for numerous aircraft involved in the attack on the Basra Road, more commonly referred to as the "highway of death."<sup>46</sup>

Despite a lack of CAS sorties during Desert Storm, Navy air learned important lessons applicable to CAS operations in the future. One theory tested was the multi-mission capability of the F/A-18 Hornet. On the second day of the air war, two self-escort Hornets off the U.S.S. Saratoga, loaded with bombs for an air-to-ground mission, engaged and shot down two Iraqi fighters, and then continued to the target to complete their strike mission.<sup>47</sup> Not only were Hornets routinely scheduled in both air-to-air and air-to-ground missions throughout the war, but they also served as a valuable platforms for suppression of enemy air defenses (SEAD) missions as well, firing numerous HARM missiles at Iraqi air defense systems. This multi-mission effectiveness has far reaching tactical implications regarding CAS, which will be further discussed in Chapter 5.

However, Navy air and the F/A-18 Hornet were not without their shortcomings. First, Desert Storm was played on the Air Force's home field, not the Navy's. Commander Thomas Parker noted that, "U.S. policy during the 1980s had built up Saudi infrastructure...More than \$1 billion had been spent during that decade for upgrading 21 Saudi airfields."<sup>48</sup> As a result, Air Force assets deployed to Saudi were sent to first-rate facilities, and were never subject to land attack, which had been the case in previous wars. USAF tactical aircraft were generally located at airfields much closer to Baghdad than were their Navy counterparts, which were located in the Red Sea and Persian Gulf. In the words of Vice Admiral Robert Dunn, "There are scenarios where...the Navy will come off looking far better. But the Air Force had the opportunity to build up its forces...and we ought to give the Air Force credit for doing a fine job."<sup>49</sup> As was mentioned previously, each service brings its inherent strengths and weaknesses to a given war; in Desert Storm, the Air Force brought mainly strengths. Nonetheless, on the first night of the war, 415 of the 2,000 coalition aircraft entering Iraq flew from the decks of U.S. carriers.<sup>50</sup>

Second, according to Commander Parker, a decade long focus on fighting the massive Soviet Navy had left the U.S. Navy ill-prepared for fighting a theater-wide air campaign. The Air Force, on the other hand, had produced its vision of both the JFACC and the Air Tasking Order (ATO), leaving it the only service prepared for planning and executing the air campaign. Realizing the complexity of coordination and massive planning involved in translating an air campaign into a coherent daily flight schedule at the squadron level, the Air Force was well ahead of its contemporaries in this arena. As a result of Desert Storm, the Navy has subsequently become a full partner with the Air Force in the JFACC/ATO concept. This, of course, has important implications in the CAS arena, as centralized planning leads to a more coherent tactical application of forces on the battlefield. The ATO process greatly eases the

command and control problems encountered by pilots in the CAS arena, and should be of great value in putting ordnance on the ground in close proximity of friendlies in the future.

Finally, according to Commander Parker, the Navy found itself lacking in basic technology required to conduct a joint air-to-ground campaign. For example, its focus on single service U.S. Navy versus Soviet Navy sea battles had left its radios and friend versus foe identification systems (IFF) either incompatible or badly lagging behind joint service needs and capabilities. The Navy further lacked laser designator capability on its most numerous air-to-ground aircraft, the F/A-18. This kept the Navy out of the precision-guided munitions (PGM) game, which was vital in the desert arena. Today, these shortcomings have been either fixed or addressed to make the Navy a better player in the joint environment. This joint, vice single-service focus, will only tend to improve Navy air's performance in future CAS roles.

Desert Storm failed to provide the Navy with any significant opportunities in the CAS arena. This can largely be attributed to the success of the air campaign as a whole, and air superiority and air interdiction efforts in particular. However, Desert Storm was essential in reminding the Navy that, with the death of the Soviet fleet, it needed to shift its focus from single service Cold War sea battles back to joint forces power projection, both at sea and ashore, as had been the case in previous conflicts. This focus on joint operations, which has led to improvements in command, control, communications, and munitions, will enhance the Navy's ability to deliver CAS in future joint operations.

### Summary/Conclusions

Navy air, including Navy CAS, has played an important role in every war since WWII. During WWII, the carrier established its dominance of the seas, proving valuable not only in major fleet engagements, but in force projection ashore as well. In both Korea and Vietnam,

facing little naval threat, carrier air was used predominantly in a power projection role ashore, proving valuable in both CAS and interdiction missions, often in areas beyond range of its land-based counterparts. During Desert Storm, after a decade of focusing on a growing and serious Cold War threat from the Soviet Navy, the U.S. Navy found itself less than totally prepared for all aspects of the theater level air campaign in Desert Storm. Lessons learned from the desert indicated that the Navy must be prepared for not only naval engagements and single mission precision strikes, as had been performed on numerous occasions in the 1970-80s, but for participation in theater level campaigns with joint and coalition partners as well.

Strategy, tactics and history all suggest that carrier air's primary mission must be to protect the sea lines of communications. However, history provides numerous examples where Navy CAS, in the absence of a sea threat, has played a significant role in tactical success on the battlefield.

## Chapter 3: Arguments Against Navy Air

In this Chapter, three writers' arguments against Navy air and the platform from which it launches, the aircraft carrier, will be examined. It is important to note that these arguments, though not aimed directly at Navy CAS, in the end have the same effect - by eliminating the need for Navy air in general, Navy CAS is eliminated specifically. For this reason, it is important that these arguments be addressed.

The first argument presented proclaims that fixed-wing CAS, and therefore Navy CAS, is no longer needed, as the Apache helicopter is all that is necessary to provide CAS for today's Army. The second argument proclaims that Navy air in general, and as a result, Navy CAS, is simply too expensive to continue funding. The final argument builds on the second, claiming that Navy air, based off the aircraft carrier, is too vulnerable to attack, and therefore should not be funded.

### Apache Only Advocates

Few ground soldiers today would state that CAS is not valued, but there are those who do argue that fixed-wing CAS has become an outdated and wasteful expenditure. Retired Lieutenant Colonel (LTC) William G. Welch argues that the Army should take sole responsibility for providing its own CAS. As part of his argument, he states that, "No aircraft in the Air Force inventory can match the Apache helicopter in providing support to ground troops."<sup>51</sup>

The Apache is indeed an extremely capable aircraft, and LTC Welch's assessment of its capabilities under certain scenarios is correct. When a ground war is preceded by 40 days of an intense air campaign, where no enemy air is in sight, and opposing forces are far more inclined to run or surrender than fight, the Apache is incredibly survivable and the proper weapon for the

task at hand. However, change the scenario to one where the enemy is well-prepared with in-depth anti-aircraft artillery (AAA), shoulder mounted heat seeking surface-to-air missiles (manpads), and/or strong enemy air (fighters), and the Apache's position on the battlefield doesn't look quite as invincible.

Take, for example, statistics on aircraft lost in Vietnam, where the enemy offered stiffer resistance than in Iraq. 58% of total U.S. aircraft losses, over 4,500 of nearly 8,000, were helicopters.<sup>52</sup> Any weapons system which routinely works in the low altitude environment, like the helicopter, is subject to intense enemy ground fire. It must be noted that recent technological gains in design and weapon's technology make the helicopter more survivable than its 1960's equivalent on the battlefield. However, an equally compelling argument can be made that the advent of plentiful defensive weapons, such as manpads and advanced targeting systems, has re-leveled that very same playing field.

Low altitude operations, despite all the lip service paid to SAMs, fighters and other risks associated with high altitude flight, have always been extremely lethal. Evidence of this can be seen in studying the statistics of previous wars. For fixed-wing aircraft in Vietnam, 55% of Navy and 73% of Air Force aircraft losses were directly attributed to AAA and small arms fire, with another 25% and 16% coming from unknown sources respectively.<sup>53</sup> If the unknown losses are assumed at the same rate as the documented losses, Navy and Air Force low altitude loss rates can be estimated at 68% and 85% respectively. Note that these numbers are for fixed-wing assets only - they do not include the 4500 helicopters which were almost exclusively killed in the low altitude environment. During Desert Storm, 71% of total fixed-wing losses were attributed to low altitude systems, with another 12% attributed to unknown sources.<sup>54</sup> Using the same extrapolation as above, nearly 80% of total aircraft losses could be attributed to AAA, small arms fire, and manpads.



These numbers do not bode well for low flying weapons systems, especially considering the fact that most of the Navy and Air Force assets in the above statistics were flying at much faster speeds than those generally flown by Army helicopters, thereby increasing their survivability. Using this data as a reference, the idea of basing CAS entirely around one low altitude weapons platform seems less than appealing.

It is near-sighted to assume that the threat, or the lack thereof, faced by the CAS assets of Desert Storm will remain unchanged in future conflicts. Ignoring the flexibility of multi-axis attacks from multi-mission capable aircraft, especially given the recent improvements in offensive targeting systems, is indeed short range thinking. This argument will be more fully developed in Chapter 5.

### Navy Air is too Expensive

Retired Lieutenant General William E. Odom offers the argument that not only are Apache assets, as demonstrated in Desert Storm, the CAS of the future, but that Navy CAS, being based off a cost inefficient platform, is too expensive to fund.<sup>55</sup> In order to address this argument, as was previously mentioned, it will be necessary to change the focus of discussion from Navy CAS specifically to carrier air power and carrier battle groups (CVBGs) in general, as this forms the fundamental basis for General Odom's argument. It is important to realize, however, that the two go hand in hand - without the CVBG, there can be no Navy CAS. In other words, if the CVBG is indeed obsolete, then all further discussion on Navy CAS is irrelevant. For this reason, General Odom's CVBG argument is presented.

General Odom argues that it costs twice as much to sustain a CVBG as it does to sustain an equivalent level of land-based tactical aircraft; therefore, carrier air, including Navy CAS, should be abandoned based on cost inefficiency.<sup>56</sup> It is important to note that General Odom's

argument makes the implicit assumption that a CVBG provides air power only, as does its equivalent in land based aircraft. This focus by General Odom is perhaps a bit narrow, as a CVBG provides not only the equivalent raw air power of its land-based counterparts, but much more as well.

A CVBG, which generally includes an aircraft carrier, 1-2 cruisers, 1-4 destroyers/frigates, 2-3 submarines, and associated supply ships, provides its own airfield and self defense wherever it deploys, allowing operations to be conducted continuously from neutral terrain (international waters). Land-based aircraft, unless capable of flying continuous missions from U.S. soil with sufficient sortie rates to create plausible deterrence, are heavily dependent on foreign airfields and host nation/Army ground forces for support and security. This may not be feasible in many instances due to political implications. This cost is not reflected in General Odom's analysis.

A CVBG also provides not only air power, but hundreds of ship launched, long-range Tomahawk cruise missiles for power projection ashore as well. This flexible firepower does not come for free, and is not included in General Odom's analysis. Nor is the layered air defense system inherent to every CVBG, which protects not only the Navy, but land-based soldiers and aircraft working within the CVBG's battle space as well. This air defense system, which extends hundreds of miles, is absolutely crucial to the success of any future operation in the littorals of the world, whether by Army, Navy, Air Force, or Marine forces.

CVBGs also ensure that vital sea lanes remain open as well. The attack submarines, cruisers, destroyers, and frigates of a CVBG provide a potent threat to enemy fleets and shipping assets, especially when used in combination with the CVBG's air power. Elements of CVBGs routinely conduct ship boardings at the behest of our national government. Over 21,000 such

ship intercepts were performed by the U.S. Navy in the Arabian Gulf from 1990-1994, all under the cover of Navy air.<sup>57</sup> Land-based aircraft are not capable of performing these missions.

CVBGs also provide and protect most of their own sustainment forces, a function in which their land-based air counterparts fall far short. Navy supply ships and the defense required for them, like all of the aforementioned, do not come for free.

This list of reasons why General Odom's arguments against Navy CVBGs from a basis of cost comparison with land-based air is not exhaustive; however, it is extensive enough to show that his cost analysis is lacking in certain key areas, and thus should not be taken at face value. A comparison is not a comparison if the items being compared are not comparable.

General Odom continues that today, regardless of airfield status and cost, Air Force long-range bombers can supply air support wherever it is needed throughout the world.<sup>58</sup> Citing the March 1996 Taiwan/ China conflict, where two CVBGs were sent to show U.S. support for Taiwan, General Odom argues that the job could have been more efficiently accomplished by Fifth Air Force assets flying from Japan.<sup>59</sup>

Such a mission would have involved USAF fighters flying a 1600 plus mile round trip, not including flight time for the actual combat patrol (CAP). Simple mathematics shows that this would have entailed sustained flight operations with sortie durations of a minimum of six hours (four hours transit/tanking time with only two hours on CAP). Given the 4/2 transit to CAP ratio, it would have taken the equivalent of three aircraft and three air crew airborne at any one time to fly one combat mission. In other words, it would have taken twelve fighters airborne to put four fighters on CAP near Taiwan.

These numbers further do not include the extra fighters required to protect tankers, AWACS, and other aircraft on long-range missions to support the fighters on CAP near Taiwan. In other words, the twelve fighters airborne required to get four fighters on CAP would have

reflected just the tip of the iceberg - numerous other fighters and support aircraft, including tankers and AWACs, would have been needed as well.

Beyond the above shortcomings, each six hour mission would have entailed a minimum two hour preflight plus one hour debrief per aircrew, which would have limited each aircrew to an inefficient one flight per day. This would have severely degraded the Air Force's ability to provide the sortie flexibility and firepower necessary in the event an actual "situation" requiring immediate response developed.

This was not the case when two CVBGs actually deployed to Taiwan. The extremely limited number of long range land-based aircraft on patrol at any one time could not have possibly matched the time critical firepower and sortie flexibility of two carrier air wings placed directly between Taiwan and China. Beyond air power, the offensive capabilities and air defense assets of the cruisers, destroyers, frigates, and submarines of the CVBGs were further deterrents to any Chinese thoughts of conducting more than just missile tests. To assume that four or eight land-based F-15s could have provided this level of deterrence ignores the total capabilities of CVBGs - they provide much more than just air power.

Taiwan aside, General Odom concludes that the Navy needs more sea lift assets to support the Army, not only at the expense of future CVBGs, but at the expense of existing ones as well.<sup>60</sup> Historically, naval support has supplied 90-95% of all assets for large military operations,<sup>61</sup> a fact which was reinforced by figures from Desert Storm, where over 95% of all supplies and equipment came via the sea.<sup>62</sup>

However, concluding that these figures indicate more supply ships are needed without defensive considerations is short sighted. Navy air exists to provide full battlespace control wherever surface ships deploy. Without this protection, surface ships, including sea-lift assets, will be incapable of performing their missions in times of contested seas, especially in the

littorals of the world. Considering this fact, arguments against carrier air and the other ships of the fleet, which provide the protection required for sea-lift assets to safely operate, must be carefully considered. More sea-lift is not a bad thing; however, without the battlespace protection provided by CVBGs, the Army may one day find itself trucking its supplies from the bottom of the ocean.

### Navy Air is too Vulnerable

Army Colonel Douglas Macgregor's book, *Breaking the Phalanx*, continues the attack against sea power and Navy air, stating that the very future of sea power itself is in jeopardy. He cites as primary evidence the ease with which two British Royal Navy warships were sunk by Exocet missiles in the Falklands.<sup>63</sup> When considering this argument, it is important to note that the British fleet fell well short of U.S. Navy standards in terms of defensive capabilities against the Argentinean air threat. As was mentioned earlier, a comparison is not a comparison unless the things being compared are comparable.

What the Falkland's example may actually suggest is in fact quite different from what Colonel Macgregor proposes - that a surface navy, in accordance with Colonel Warden's theory, requires air superiority to conduct operations near land, thereby making the CVBG the centerpiece for all naval operations. A U.S. CVBG's air defense zone stretches hundreds of miles from the carrier, providing the air superiority that the British lacked. The British fleet had neither the surface-to-air missile capability of the surface combatants, nor a fraction of the fighter coverage, of one U.S. CVBG. The probability of getting an Exocet launch platform within 30 miles of a U.S. aircraft carrier, although indeed a serious threat, is in fact extremely low. Equating the sinking of two British warships in the Falklands with the obsolescence of the U.S. CVBG is indeed a long step in logic.

Colonel Macgregor continues that, beyond the threat of the Exocet missile, it is ultimately the cruise missile which forebodes the demise of sea power. As serious a threat as these missiles may be, Colonel Macgregor dismisses the fact that current technology exists to destroy cruise missiles in flight. He further disregards the fact that, unlike relatively immobile land targets, the targeting of a ship which is 50-100 miles from shore, cruising at speeds faster than the average M1A1 Abrams tank moves across the battlefield, is a very difficult task for any enemy. The Soviet Union's massive effort to build a fleet of ten aircraft carriers, including four in the nuclear powered, steam catapult BLACKOM 5 Class (for the Su-27 Flanker), which was thwarted by the breakup of their union, is strong evidence that they felt the carrier had long term viability and survivability - this in spite of the fact that they had full knowledge of cruise missile technology.<sup>64</sup> This fact is further supported in today's push by China, India, France, Thailand, Brazil, and Great Britain to build new aircraft carriers.<sup>65</sup>

### Summary/Conclusions

If all future wars revolved around the placid sea and benign land scenario of Desert Storm, then the arguments of Lieutenant Colonel Welch, Lieutenant General Odom, and Colonel Macgregor would be valid. History, however, suggests otherwise.

Given the record of aircraft killed in previous wars, basing CAS around any one weapons system, as Lieutenant Colonel Welch contends, which operates exclusively in the high threat low altitude environment, is not tactically sound. The availability of both Air Force and Navy multi-mission, multi-axis CAS capable aircraft complement, rather than detract from, the capabilities of the Apache.

General Odom's and Colonel Macgregor's arguments against CVBGs present a mere sketch of the true mosaic of the CVBGs overall role in joint warfare. Certainly the Nimitz class

carrier is not without its shortcomings and areas in which it can evolve and improve. Yet that does not negate its indispensable function in control of the sea and protection of shipping assets. Assuming that the mission of a CVBG can be filled by land-based air ignores the myriad of missions performed by sea-based forces. It further ignores the fact that ships at sea, especially in this age of long range bombers, require air superiority in the battlespace in which they operate. This superiority must be provided by a platform which is flexible enough to provide immediate response to the threat, thereby ruling out long range land-based assets. When security of sea assets is not threatened, carrier air is freed for ground missions in support of the JFACC. Viewed from this perspective, carrier air is an essential asset to joint capabilities, rather than the wasteful expenditure that its critics make it out to be.

A CVBG, despite its weaknesses, is a formidable platform whose defense is not readily penetrable. Given the fact that 99% of U.S. import/export tonnage is conducted via sea lanes,<sup>66</sup> and further, that current demographic trends indicate that by 2025, 75% of the world's population will live within 100 miles of a navigable coast,<sup>67</sup> ignoring sea power and power projection capability from the seas is a grave error. Whether in securing the seas, forced entry/exit operations, or power projection ashore, the CVBG and its air assets are vital resources which are far from obsolete. As a result, carrier air must continue to work in combination with land-power assets to protect our national interests.

## Chapter 4: Analysis of Navy CAS

In this chapter, four arguments against Navy CAS in particular will be examined. The first argument addressed will be the contention that CAS can only be delivered effectively by slow flying aircraft, which the Navy does not currently possess. This will be followed by the critique of Navy CAS from the perspective of limited range, both in terms of carrier presence, and in terms of the range of the F/A-18 Hornet, the Navy's most numerous CAS capable airframe. Finally, arguments against carrier CAS from the perspective of sortie availability will be addressed.

### The Slow Mover Argument

Joint Pub 3-09.3, "Tactics, Techniques, and Procedures for CAS," states that CAS can be performed from high, medium, or low altitudes.<sup>68</sup> As was seen in Chapter 3, aircraft survivability has historically been greatly reduced in low altitude flight operations. Thus follows the old Naval Aviation adage that, "Low and slow is no way to go through life." Yet today the argument persists that only low/slow flying aircraft are effective at CAS. This "slow mover myth," as offered by USAF LTC Bruce Carlson, was born from the fact that all aircraft of the past relied on manual bombing to hit their targets - therefore, slower moving aircraft at low altitude held a marked geometric edge over their faster moving counterparts in weapon's accuracy.<sup>69</sup> (53) LTC Carlson laments that this argument "has been refined...to the point where speed is now detrimental to air-to-ground tactical operations," - which he contends is an outdated notion.<sup>70</sup> According to LTC Carlson, not only are the high speed, high tech aircraft of today more survivable than last years models, but they are more accurate at delivering ordnance than their slow moving predecessors as well, making them the CAS aircraft of the future.



Since the Vietnam era, the geometric advantage inherent in the weapon's accuracy of slow moving aircraft has been overtaken by modern computerization and targeting technology. Today, aircraft like the F/A-18 Hornet use computerized bombing based on ring laser gyroscopic inertial navigation systems (INS), coupled with Global Positioning Satellites (GPS), if needed, to accurately solve the most complex of geometric bombing equations in fractions of a second. Target distances are measured through laser or radar ranging supported by numerous back-up systems to ensure accurate data. If a target can be seen and identified, attacking it accurately is no longer a function of how low and slow an aircraft is moving - it can be engaged as readily from high airspeed and/or altitude. As a result, combat units which consistently train CAS with high performance aircraft, such as the U.S. Marine Corps, have found it both highly effective and survivable. Slow may no longer be the only, nor even wisest, way to deliver CAS.

### The Range of Navy CAS

On 29 September 1997, Iranian aircraft flew south of the 32nd Parallel and bombed Iraqi targets, violating the no-fly zone the U.S. has enforced over Iraq since Desert Storm concluded. However, for the first time in recent history, no Navy response to the violation was made, as the nearest carrier, the U.S.S. Nimitz, was near Hong Kong, having just deployed from Bremerton, Washington. Ordered to speed to the scene, however, the Nimitz began flight operations in the Persian Gulf within the week.<sup>71</sup>

Aircraft carriers cannot be everywhere at once, but it is indeed the Navy's intention to have them located at the troubled spots of the world. Budget cutbacks have however, according to Rear Admiral Ronald L. Christenson, Navy carrier development planner, resulted in a reduction in total aircraft carriers to 12, down from the 14 required to provide 100% coverage in the Mediterranean Sea, Arabian Gulf, and Pacific Oceans at all times.<sup>72</sup> Current fleet cutbacks

equate to occasional gaps in total coverage, which in this case resulted in exploitation by the Iranians. Not only did Iran choose to conduct its attack during the absence of a CVBG, but it also took advantage of the empty gulf to conduct naval wargames of its own, which were rudely interrupted by the early arrival of the Nimitz battle group.

Although a CVBG was not stationed in the Persian Gulf when the Iraqi attack took place, aircraft carriers have historically proven themselves highly responsive in areas where U.S. vital interests are at stake. Whether on station, or ordered to steam to a hotspot, as was witnessed in this case and in Taiwan/China as well, the flexibility of carrier air to move around the globe, albeit at 30 knots, is more often than not an asset rather than a liability. This ability of the CVBG to rapidly move should be a primary consideration for planners in areas where CAS is concerned.

Once a carrier is on station, the range of Navy CAS is limited by two things - the range of the aircraft flying the mission and the availability of air refueling assets. Given that the discussion here is on range, attention will focus on the Navy F/A-18 Hornet rather than the F-14 Tomcat, due to the Hornet's shorter range. According to Jane's, the F/A-18C Hornet's unrefueled air-to-ground combat radius is 340 miles, and its combat endurance is 1.75 hours.<sup>73</sup> Currently concluding flight tests and slated for full scale production in 1998, the F/A-18E Super Hornet will have an increased air-to-ground combat radius of 449 miles, and a combat endurance of 2.25 hours.<sup>74</sup> Although the Navy is often derided for lack of "legs" on its aircraft, the USAF's comparable CAS aircraft, the F-16 Falcon, has an air-to-ground combat radius of 392 miles, which does not differ significantly from its Navy counterparts.<sup>75</sup> The A-10 Thunderbolt, whose production was terminated in 1984, has an advertised CAS radius of 250 miles with an impressive maximum conserve loiter time of 1.7 hours on station.<sup>76</sup> This long loiter time,

however, comes at a price, as the A-10's top speed is fully 1/3 that of the aforementioned aircraft, leaving it highly vulnerable in a combat environment.

What is important to note from this discussion is that each airframe brings a different capability to the fight. Though the Thunderbolt may have the ability to loiter on station for long periods of time, if it is shot down due to inferior speed or lack of air-to-air capabilities, loiter time becomes a mute point. Increased loiter time for other CAS aircraft, such as the Falcon and Hornet, is a function of the availability of air refueling assets, which are generally available in most theaters of operation. Further, it is important to note that although the Hornet may not have the unrefueled legs of a Thunderbolt, the ability of carriers to move into areas where airfield availability is limited, as was the case in Korea and North Vietnam, may in certain scenarios give the Hornet longer total "legs" than any of its peers. Again, this is an important consideration for planners in the CAS arena.

### Total Sorties Across the Beach

With the current carrier fleet standing at 12, down from 15 at the time of the Gulf War, the Navy is pressing to get the most out of each and every carrier. With the advent of new carrier air wings based around 3 Hornet/1 Tomcat squadrons, as opposed to past air wings based around 2 Hornet/2 Tomcat/1 Intruder squadrons, the Navy is capable of launching more sorties per day today than ever before.<sup>77</sup>

In a single 48 hour period during workups for its 1996 cruise, the U.S.S. Nimitz launched an unprecedented 450 sorties - 130 more than exercise planners thought possible for a single carrier air wing.<sup>78</sup> Normal carrier flight operations since the Vietnam War have followed a 12-hours-on/12-hours-off operational cycle. This exercise, which the author participated in, was based largely around a CAS scenario, with tactical aircraft delivering ordnance to land

targets during continuous 24 hour operations. This ground-breaking exercise was followed up by a more intense 96 hour exercise, conducted again by the U.S.S. Nimitz, from 20-24 July 1997. In this exercise, a single carrier launched 1025 sorties, of which the vast majority, over 800, were flown by strike capable aircraft.<sup>79</sup>

It is important to note that these were "surge" operations, meant to show the maximum capacity of an air wing to throw sorties at the beach for a short-term operation. Such an operation, however, is significant for Army planners, as it shows a single aircraft carrier's ability to put sorties, including large quantities of CAS, into the air to support a short-term objective, such as a planned offensive or entry/exit operation. It further indicates the Navy's continued commitment to supporting soldiers ashore.

### Summary/Conclusions

Although slow moving aircraft, such as the A-10 Thunderbolt and the AH-64 Apache, have the advantage over their fast moving counterparts in areas such as loiter time and visual target acquisition, they also have the distinct disadvantage of being extremely vulnerable in the target area. Regarding CAS, advances in technology have tended to favor faster moving, multi-mission capable aircraft in recent years. However, as has been stated throughout this paper, each airframe brings its own unique strengths and weaknesses to the fight, a fact which should temper all battlefield planning.

Although CVBGs cannot be located within strike distance of every contingency in the world, they are usually capable of quickly moving to areas accessible by navigable waters in a matter of days. The flexibility of the carrier's range combined with the range of its strike aircraft make it, at times, the most capable airfield for launching large numbers of CAS sorties into a

fight. Recent exercises by the U.S.S. Nimitz provide evidence of the Navy's continued commitment to support of CAS and ground operations.

## Chapter 5: Army/Navy CAS Cooperation

Army Operations Field Manual 100-5 states that, "CAS can enhance ground force operations by delivering a wide range of weapons and massed firepower at decisive points."<sup>80</sup> In a joint environment, CAS delivered to these decisive points may well come from not only USAF and organic Army assets, but from Navy assets as well. Discussion in this chapter focuses on not only what firepower Navy CAS adds to the Army on the battlefield, but on how its use by planners should continue to evolve. Although both the Navy F-14 Tomcat and F/A-18 Hornet are capable of delivering a wide variety of CAS munitions, discussion in this chapter will primarily focus on the F/A-18 Hornet, which is still under production, constituting the Navy's most numerous airframe. This is done in the interest of keeping the argument concise - in no way is it meant to negate the capabilities of the F-14.

A quick scan of weapon's availability and capabilities, as presented by Joint Pub 3-09.3, shows that the F/A-18 Hornet is capable of delivering more weapons types in the CAS environment than any other airframe in the U.S. inventory, including both the AH-64 Apache and the A-10 Thunderbolt.<sup>81</sup> This opens a range of options to ground component commanders, who can now tailor desired battlefield effects from a wide menu of munitions. The Hornet can deliver a variety of non-precision general purpose bombs, cluster munitions, mines, rockets, and strafe with a high degree of accuracy, all while using speed to maintain standoff range, thereby increasing survivability. Precision guided munitions only add to the Hornet's lethality in the CAS role, with weapons as varied as infra-red and laser guided Mavericks, TV-guided Walleyes, laser-guided bombs, and HARM and SLAM missiles. Given that the Hornet's targeting systems include not only FLIR, INS, GPS, radar and NVG, it is capable of delivering highly accurate munitions both day and night, from high, medium, or low altitudes.

This, of course, does not negate the outstanding capabilities of the Army's AH-64 Apache helicopter. Armed with Hellfire missiles and a 30mm cannon, it is also a formidable weapons platform. What is important to note, however, is that the Apache's strengths are the Hornet's weaknesses, and vice-versa. The Apache is limited to low speed, low altitude operations, which leaves it vulnerable to AAA and manpads. The Hornet is capable of using both speed and altitude to negate these threats. Yet, the use of speed and altitude by the Hornet increases the difficulty of visual target acquisition, an area in which the lower/slower Apache is often better suited. Likewise, a high altitude Hornet may be susceptible to a SAM system which the Apache can avoid and destroy. On the other hand, a low altitude Apache may be susceptible to another SAM system which the Hornet or other Navy air, most notably the EA-6B Prowler, can destroy.

The important lesson to be learned from this is that the way to achieve victory on the battlefield is not through individual services fighting their own independent wars, but through the synergism of combined arms massing effects on opposing forces. This, of course, is precisely what the Army and Navy should be doing in the area of CAS - training together to maximize the advantages of their weapons platforms, while minimizing their weaknesses.

The problem which faces the services today is the limited "box" in which CAS has come to be viewed. This "box," it must be noted, is a function of the limited thinking of all the services, not just the USAF or JFACC in particular. In planning an air campaign, no opinion is more valuable than that of the ground commander, as the air campaign's mission is, more often than not, to set the stage for putting American boots on the ground. If ground campaign planners can't effectively communicate the types of battlefield effects they wish air to achieve, in effect handing off decisions to the interpretations of air planners, then they are likely contributing to the mismanagement of battlefield resources.

Specifically regarding CAS, in this day of multi-mission aircraft, it is imperative for ground planners to understand the tactical flexibility and wide array of munitions CAS can deliver to the battlefield. Joint Pub 3-09.3 states that "CAS provides firepower in offensive and defensive operations to destroy, disrupt, suppress, fix, or delay enemy forces in close proximity to friendly forces."<sup>82</sup> Note that this states nothing about limiting the role of CAS to A-10 Thunderbolts or AH-64 Apaches busting tanks on the front line. Yet all too often in exercises, CAS is equated with just that - the aforementioned platforms killing tanks. Old habits, of course, die hard.

What is needed is integrated planning to achieve desired battlefield effects with minimal friendly losses. In order to facilitate this, planners must ensure, to the greatest extent possible, that ground plans are relayed to the JFACC in a timely manner to ensure nesting between the air and ground campaigns. Efficient use of resources is the key, and this cannot be achieved if planning is not synchronized in a unified effort towards a common goal. Ground focus can only be adequately provided to the JFACC through the Joint Forces Land Component Commander (JFLCC). In order for proper nesting to occur, JFLCCs must ensure continued emphasis and increased staffing of air-minded Army representatives in the JFACC.

Although the German use of air power in WWII, at least from a strategic point of view, left something to be desired, their use of CAS in the initial blitzkrieg of Europe was highly effective. German air was well integrated, both in training and doctrine, into army operations. Along these lines, it must be noted that our own current innovative use of CAS commensurate with today's level of technology is held back only by our own unwillingness to train and plan to it. As was laid out in Chapter 1, moving CAS to air priority "one" for short duration operations is not a problem, as long as it does not remain the focus of the entire campaign. The problem,



then, regarding our lack of direction in the CAS arena, seems to be our own unwillingness as a joint force to train towards it.

For example, imagine a planned offensive or forced entry operation, where “the battle certainly will end within a few days,” thereby satisfying Colonel Warden’s requisite for moving CAS to the highest priority.<sup>83</sup> Further, imagine a CVBG within striking range providing air support for the operation (although the USAF could provide similar services if available). Finally, rather than thinking of CAS in its traditional “single aircraft destroying single tanks” view, imagine it instead as the integration of composite air strikes in close proximity to friendly forces.

Thinking in this manner, the Hornets, Tomcats, and Prowlers of the CVBG could do a wide variety missions during the assault that would, according to the joint definition, be defined as CAS. It is important to note that the use of a Prowler in this regard is rarely thought of as CAS, yet its capability to jam the enemy’s electronic spectrum while firing HARM missiles at enemy radars in close proximity to friendly troops could fall within the CAS definition, especially when employed as part of a larger CAS package designed to directly attack the threat. The SEAD of the Prowler could be further augmented, if necessary, by HARM carrying Hornets, thereby enabling other aircraft, including Apaches, to get in close for the fight. High altitude Hornets and Tomcats could lay minefields as the offensive begins to channel enemy forces, thereby freeing Army fire support units of the time consuming task, allowing them to focus on other more time critical missions. Apaches, supported by not only the SEAD coverage of Prowlers, but by the added air-to-air coverage of CAS package Hornets and Tomcats as well, could now operate in a more protected environment. According to the dictates of the plan, concurrent vertical and horizontal axes attacks could be conducted by Apaches, Tomcats and Hornets to saturate and confuse the enemy air defenses, thereby increasing individual aircraft

survivability. These attacks could incorporate LGBs, Mavericks, mines, Hellfires, rockets, strafe, cluster and general purpose munitions, and more against an array of targets across the battlefield.

Incorporating such an attack involves nothing more than overcoming the 1970's and 80's mindset of CAS, and working jointly to step forward towards the 21<sup>st</sup> century. Joint operations demand that we move beyond the thought of CAS as individual aircraft being piecemealed into the fight, and move towards CAS packages designed to create synergistic effects. Army planners must, time permitting, relay their desires to the JFACC in order to get the desired CAS effects on the battlefield. To ease Army planning, JFACCs should in turn have a list of standard CAS package options available for ground commanders which fit different tactical scenarios. Ground planners could then easily pick the package type they desire for the engagement, rather than requesting individual sorties, not knowing what type of aircraft will show up as the battle begins or as it unfolds. Coordinated CAS packages, developed with the needs of the ground commander in mind, must represent the future direction of CAS.

This, of course, will entail a greater understanding of what joint air power can do by Army planners, and a greater understanding of what the troops on the ground need by JFACC planners. In order to accomplish this, it is the opinion of the author that the Army needs to place much greater emphasis on the JFACC, both in the areas of officer education and in actual JFACC manning. The Army will only get out of the JFACC what it puts into it.

### Joint Training

Professor I.B. Holley, Jr., author of *Case Studies in the Development of Close Air Support*, has stated that "...interservice operations inescapably pose grave difficulties in execution...Often corrective steps have been achieved only after many failures in battle. In no

area...has this phenomena been more pronounced than in the matter of close air support.”<sup>84</sup> The logical question which follows is: Will we begin more intense joint training in the area of CAS now, or wait until future failure on the battlefield forces us to do so?

The failure to train in a joint environment not only lessens the likelihood of combat effectiveness, but also increases the likelihood of fratricide as well. Regarding this subject, Joint Pub 3-09.3 concludes that “units must habitually emphasize joint training” to reduce the risk of fratricide.<sup>85</sup> In Desert Storm, of the 148 total U.S. fatalities, 35 were determined to be the result of friendly fire. Of those 35, 10 were the result of friendly air in what could be construed a CAS environment - 8 by fixed-wing air/2 by an AH-64 Apache.<sup>86</sup>

The study, “Who Goes There: Friend or Foe,” conducted for the U.S. Congress in response to the Desert Storm fratricides, concluded that though improved identification technology was important in maintaining situational awareness on the battlefield and reducing friendly fire incidents, technology alone couldn’t provide the whole solution - “The solution to the problem of fratricide is not just black boxes; training and combat skill are at least as important.”<sup>87</sup> Regarding the results of Desert Storm, Colonel David Hackworth noted that, “Training needs to change...units do not train for integrated combat in a live-fire environment, where artillery, armed helicopters, close air support jets, armored vehicles and soldiers replicate the violent and confusing conditions found on the battlefield.”<sup>88</sup>

Joint training, of course, holds the solution to this problem. In the case of CAS, few more realistic training environments exist than that available at the Army’s National Training Center (NTC) at Fort Irwin, California. In a 1600 square kilometer piece of the Mojave Desert, the Army conducts its most intense and realistic wargames, complete with maneuvering friendly and opposing forces.<sup>89</sup> The NTC counts on the USAF’s 57th Wing “Air Warrior” program to ensure CAS sorties are available for every NTC rotation.<sup>90</sup> Brigadier General T. Michael

Mosely, Commanding Officer of the 57th Wing, testifying before the House National Security Committee on 4 March 1997, stated that though Air Warrior exercises supporting NTC rotations have recently dropped from 12 to 8 per year, they still provide over 3,000 sorties annually in support of operations at Fort Irwin.<sup>91</sup> Although the Navy is asked to participate in Air Warrior when USAF assets are not available, the vast majority of these 3,000 sorties are flown by the USAF.

It is important to note that the opportunity for expanded CAS training between the Army and Navy could easily be accommodated at the NTC if emphasis was placed in that direction. Fort Irwin conveniently lies within the confines of the R-2508 flight training complex, which is daily utilized by the 11 Navy F/A-18 squadrons of Naval Air Station (NAS) Lemoore, California. Standard flight routing distance between NAS Lemoore and the NTC is about 250 miles. With Navy air refueling assets from NAS North Island and the available air refueling tracks in the R-2508 complex, realistic Army/Navy CAS training with maneuver units in the field could routinely be conducted. It is important to note that Hornet squadron's are already required and funded to maintain currency in CAS - training with the NTC would only add to the quality of existing training, allowing pilots to target moving units in realistic scenarios, rather than rolling in on deserted tank hulls in a non-moving, benign target complex.

Beyond individual squadron level CAS training, CVBG Fleet Exercises, conducted by every west coast CVBG prior to deployment, occur in waters near San Diego, just 250 miles from the NTC. Joint training incorporating Navy elements from the CVBG, USAF elements from Nellis AFB, and Army elements at the NTC could provide valuable insights into our capabilities in future operations requiring CAS. Such exercises would rapidly indicate areas in which joint capabilities are lacking, especially in the critical areas of command, control, communications and intelligence.

In the end, effectiveness and efficiency, at least when related to CAS, occur only when all participants are trained in a dynamic, realistic environment. In this regard, the Navy and Army could only benefit from increased cooperation in the mission of CAS.

## Chapter 6: Conclusions

We live in a nation that is economically and demographically tied to the sea. President William Clinton has stated that, "Even with all the changes in the world, some basic facts endure...We are a maritime nation...As long as these facts remain true, we need naval forces that can dominate the sea, project power, and protect our interests."<sup>92</sup> This in no way suggests that sea power alone can singularly defend the nation. However, it does allude to sea power as a vital component in our national strategy.

Today, the centerpiece of sea power remains the CVBG. This will remain necessary into the foreseeable future, as surface fleets require local air superiority in times of war wherever they deploy. A CVBG's layered defense provides a potent deterrence to even the most capable of opposing forces. When protection of the fleet has been assured, as has often been the case historically, carrier air is freed to support land forces in power projection operations ashore.

From WWII to the present, Navy CAS has played an important role in such power projection efforts. However, since CAS is not as glamorous a mission as air-to-air or precision strike, it tends to lie forgotten in the doldrums during the years between major wars. Sadly, as Professor I.B. Holley, Jr. has pointed out, we only tend to remember our lack of CAS training when young Americans lie dead on the battlefield.<sup>93</sup>

We, as a joint force, can do better. Certainly there are deficiencies in the Navy and in Navy CAS, as have been pointed out throughout this paper. But deficiencies are not a uniquely Navy phenomena. By training as a joint force, such deficiencies can be diminished through total force integration. Combining Army and Navy assets in integrated CAS training will produce synergistic effects that are today unrealized. Sufficient Army, Navy, Marine Corps, and Air Force assets exist in close proximity to the NTC to enable better interservice CAS training. Such

training would greatly enhance our joint capabilities, not only in the limited area of CAS, but in the broader spectrums of command, control, communications, and intelligence as well.

Further, we must continue to move forward conceptually in the tactical application of CAS to the battlefield, rather than remaining fixated on the methods of the past. In this regard, the USAF's concept of "push CAS" as employed during Desert Storm must be commended. But we need to move further still, investigating the tactical implications of CAS as strike packages designed for synergistic battlefield effects, rather than as individual aircraft piecemealed into the fight. This can only be realized through enhanced joint CAS training.

Each service brings its own unique strengths and weaknesses to the fight. Planners must learn to recognize these capabilities across service boundaries, or future endeavors are bound to fail. This learning will never be fully achieved in a classroom or through the pages of a book; it must be gained through continued and expanded joint operations in simulated battlefield environments, like those offered at the NTC. The Army and Navy can only benefit from such interaction, especially in the area of CAS.

## Endnotes

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- <sup>3</sup> Blair, 542-543.
- <sup>4</sup> James Blackwell, *Thunder in the Desert* (New York: Bantam Books, 1991), 115.
- <sup>5</sup> John A. Warden III, *The Air Campaign: Planning for Combat* (Washington, D.C.: National Defense University Press, 1988), 113.
- <sup>6</sup> Ibid., 14.
- <sup>7</sup> Ibid., 15.
- <sup>8</sup> Ibid., 17.
- <sup>9</sup> Ibid., 8-9.
- <sup>10</sup> Ibid., 105.
- <sup>11</sup> Ibid., 159.
- <sup>12</sup> Ibid., xviii.
- <sup>13</sup> Clayton D. James, *The Years of MacArthur, 1941-45* (Boston, Houghton Mifflin Company, 1975), 281.
- <sup>14</sup> Edwin P. Hoyt, *MacArthur's Navy* (New York: Orion Books, 1989), 100-101.
- <sup>15</sup> Hallion, viii.
- <sup>16</sup> Ibid., 40-41.
- <sup>17</sup> Ibid., 59-60.
- <sup>18</sup> Ibid., 64.
- <sup>19</sup> Ibid., 43.
- <sup>20</sup> Ibid., 43.
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- <sup>23</sup> Ibid., 167.
- <sup>24</sup> Ibid., 168.
- <sup>25</sup> Hallion, 82.
- <sup>26</sup> Mossman, 172.
- <sup>27</sup> Robert Jackson, *Air War over Korea* (New York: Charles Scribner's Sons, 1973), 78.
- <sup>28</sup> Mossman, 173-174.
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- <sup>30</sup> Ibid., 205.
- <sup>31</sup> Ibid., 47.
- <sup>32</sup> Norman Polmar, *Aircraft Carriers* (New York: Doubleday and Company, 1969), 561.
- <sup>33</sup> Ibid., 561.
- <sup>34</sup> John B Nichols and Barrett Tillman, *On Yankee Station* (Annapolis: Naval Institute Press, 1987), 16.
- <sup>35</sup> Ibid., 18.
- <sup>36</sup> Harry G. Summers, Jr., *Vietnam War Almanac* (New York: Facts On File Publications, 1985) 141.
- <sup>37</sup> Patrick Jennings, *Battles of the Vietnam War* (New York: Exeter Books, 1985), 106.
- <sup>38</sup> Douglas Pike, *PAVN: People's Army of Vietnam* (Novato, CA: Presidio Press, 1986), 226.
- <sup>39</sup> Summers, 217.
- <sup>40</sup> Scott W. Thompson and Donaldson D. Frizzell, *The Lessons of Vietnam* (New York: Crane, Russak and Company, 1977), 136-137.
- <sup>41</sup> Rene J. Francillon, *Tonkin Gulf Yacht Club* (Annapolis: Naval Institute Press, 1988), 104.
- <sup>42</sup> Michael Clodfelter, *Vietnam in Military Statistics* (London: McFarland and Company, Inc., 1995), 124.
- <sup>43</sup> Nichols, 163.

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- <sup>44</sup> Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey Summary Report* (Washington, D.C.: U.S. Government Printing Office, 1993) 111.
- <sup>45</sup> Ibid., 51.
- <sup>46</sup> Ibid., 24.
- <sup>47</sup> Blackwell, 142.
- <sup>48</sup> Thomas A. Parker, "The Navy Got It: Desert Storm's Wake-Up Call." *Proceedings*, September 1994, 33.
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- <sup>50</sup> Blackwell, 130-131.
- <sup>51</sup> William G. Welch, "Is Fixed-Wing CAS Worth It?" *Proceedings*, September 1994, 53.
- <sup>52</sup> Michael Clodfelter, *Warfare and Armed Conflicts: A Statistical Reference, 1900-1991* (Jefferson, N.C.: McFarland and Company, 1992), 1229, 1289-1290.
- <sup>53</sup> Nichols, 164.
- <sup>54</sup> Keaney, 61.
- <sup>55</sup> William E. Odom, "Transforming the Military," *Foreign Affairs*, July/ August 1997, 63.
- <sup>56</sup> Ibid., 57.
- <sup>57</sup> Deputy Chief of Naval Operations, *Force 2001; A Program Guide to the U.S. Navy*, (Washington, D.C.: Deputy Chief of Naval Operations, Resources, Warfare Requirements and Assessments (N8), 1995), 7.
- <sup>58</sup> Odom, 57.
- <sup>59</sup> Ibid., 59.
- <sup>60</sup> Ibid., 64.
- <sup>61</sup> Department of the Navy, *Naval Doctrine Publication 1: Naval Warfare* (Washington, D.C.: U.S. Government Printing Office, 1994), 24.
- <sup>62</sup> Force 2001, 51.
- <sup>63</sup> Douglas A. Macgregor, *Breaking the Phalanx* (Westport, Connecticut: Praeger Publishers, 1997), 204.

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- <sup>70</sup> *Ibid.*, 53.
- <sup>71</sup> Bradley Peniston, "Scrambling for Ways to Squeeze More out of a Shrunken Carrier Fleet," *Navy Times*, 27 October 1997, 14.
- <sup>72</sup> *Ibid.*, 14.
- <sup>73</sup> *Jane's: All the World's Aircraft 1996-97*, (London: Butler and Tanner Limited, 1996), 657.
- <sup>74</sup> *Ibid.*, 657-658.
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- <sup>76</sup> *Jane's: All the World's Aircraft 1984-85*, (London: Butler and Tanner Limited, 1984), 389.
- <sup>77</sup> Andrew H. Bahjat, "Can One Carrier Take the Place of Two?" *Navy Times*, 1 September 1997, 22.
- <sup>78</sup> *Ibid.*, 22.
- <sup>79</sup> *Ibid.*, 22.
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- <sup>82</sup> *Ibid.*, ix.
- <sup>83</sup> Warden, 159.
- <sup>84</sup> Joint Pub 3-09.3, I-1.

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